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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,212	11/12/2003	Michael E. Connell	5083.1US (01-0428.01/US)	6326
24247	7590	04/11/2007		
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			EXAMINER RICHARDS, N DREW	
			ART UNIT 2815	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/706,212

Applicant(s)

CONNELL ET AL.

Examiner

N. Drew Richards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10-14,16-20 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10-14,16-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 2, 4-8, 10-14, 16-20 and 22-24 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of "a multifilm layer for balancing stresses in more than one direction when balancing both the tensile and compressive stresses of the semiconductor substrate" is not supported by the originally filed specification. The specification does not describe or disclose this limitation. This limitation is new matter.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 lines 10-11, claim 7 lines 11-12, claim 13 lines 10-11 and claim 19 lines 10-11 recite the limitation "the tensile and compressive stresses". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4, 7, 8, 10, 13, 14, 16, 19, 20 and 22 are rejected under 35 USC § 103 (a) as being unpatentable over U.S. Patent No. 5,827,771 to Ginn et al. ("Ginn") of record in view of U.S. Patent No. 5,798,558 to Tyson et al. ("Tyson").

With regards to claims 1, 7, 13 and 19, Ginn illustrates in figures 2-4B (entire document), particularly figure 2, a ROICS (such as a transimpedance amplifier, col. 1, lines 11-12) a semiconductor substrate 12 having a front side 12c and a back side 12b and having a low ratio of height to horizontal dimension (see FIG. 2);

an integrated circuit 14 on a portion of the front side;

layers (col. 3, lines 6-10) covering a portion of the integrated circuit causing a stress on at least a portion of the substrate; and

a stress or force balancing layer 18 covering at least a portion of the backside substantially balancing the stress caused by the layers covering a portion of the integrated circuit (see col. 3, lines 27-58), the stress or force balancing layer comprising Si₃N₄ (col. 3, lines 59-67). Additionally, "a chemical vapor deposition material" is a product by process limitation (see MPEP 2113). In the instant case, the force balancing layer 18 of Ginn et al. is substantially the same as a chemical vapor deposition material and thus reads on the claimed invention.

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Ginn does not show specifically a passivation layer. Tyson discloses in the abstract and col. 7, lines 15 a transimpedance amplifier with a passivation layer (step 65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a passivation layer. The motivation for doing this is to protect the underlying layers.

Regarding claims 2, 8, 14 and 20, Ginn illustrates in FIG. 2 the stress-balancing layer comprises a single component layer 18.

Regarding claims 4, 10, 16 and 22, Applicants are reminded that intended functional use (laser-marking) is given no patentable weight in claims drawn to structure. See *In re Pearson* 181 USPQ 641 and *Ex parte Minks* 169 USPQ 120.

7. Claims 5, 6, 11, 12, 17, 18, 23 and 24 are rejected under 35 USC § 103 (a) as being unpatentable over Ginn and Tyson as applied to claims 1, 7, 13 and 19 above, and further in view of U.S. Patent No. 5,731,954 to Cheon.

With regards to claim 5, Ginn and Tyson are discussed above, they do not show an adhesive layer attached to the device. Cheon illustrates in figure 1 and discloses in col. 4, lines 15-19 an adhesive layer attached to the device 30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an adhesive layer attaching to the device 30 to a heat sink 26. The motivation for doing this is to remove heat from the device.

Regarding claims 6, 12, 18 and 24, Applicants are reminded that intended functional use (laser-marking) is given no patentable weight in claims drawn to structure. See *In re Pearson* 181 USPQ 641 and *Ex parte Minks* 169 USPQ 120.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

8. Applicant's arguments filed 1/25/07 have been fully considered but they are not persuasive.

Applicant has argued that neither Ginn et al. nor Tysone et al, nor the combination of the two, teach "a stress-balancing layer covering at least a portion of the back side substantially balancing the stress caused by the passivation layer covering a portion of the integrated circuit, the stress-balancing layer comprising at least one of a metal, a metal alloy, a metallorganic material, a photoresist material a multilayer material for balancing stresses in more than one direction when balancing both the tensile and compressive stresses of the semiconductor substrate, a tape material for

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balancing stresses in more than one direction, an adhesive material having reinforcement materials therein, and a temporary adhesive material, a chemical vapor deposition material.”

In response to this argument it is noted that this argument merely states that the references don't teach roughly two thirds of the language of the claim. This argument does not specifically address which portion of this entire limitation is not met by the references and does not particularly point out how the references applied (and the layer relied upon for stress balancing) fail to meet the claim.

Applicant further states that Ginn et al. only teaches balancing stresses in one dimension while Tyson et al. does not discuss any stress balancing. This argument is not persuasive as the claims do not require balancing stresses in more than one dimension. In fact, the term “dimension” is not found in the claims. At best, the “dimension” referred to by applicant is the “direction” and more than one direction recited in the claim. However, balancing stress in more than one direction is only recited or required by the claim when the stress balancing layer is a multifilm layer or a tape material. The language of the claims list out various materials or combinations of materials that the stress balancing layer is at least one of. Only when the stress balancing layer is the claimed multifilm layer or tape material does the claim require the material to balance stresses in more than one direction. In the case of Ginn et al., the stress balancing film is silicon nitride which reads on the claimed “chemical vapor deposition material.” The claim does not require the chemical vapor deposition material

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balance stresses in more than one direction and thus Ginn et al. in view of Tyson et al. do render obvious the claims as written.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on Monday-Friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


N. DREW RICHARDS
PRIMARY EXAMINER